



REPLACEMENT SHEET  
APPLICANT(S): Grotendorst and Neff  
TITLE: CONNECTIVE TISSUE GROWTH FACTOR  
FRAGMENTS AND METHODS AND USES THEREOF  
Application No.: 10/658,856 File Date: September 9, 2003  
Docket No.: FIBRO1130-3  
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cccgccgacagccccgagacgacagcccggcgcgtcccggtccccacctccgaccaccgcca  
gcgtccaggccccgcgtccccgcgtcgccgccaccgcgcctccgctccgccccgagtgcca  
accATGACCGCCGCCAGTATGGGCCCCGTCCGCGTTCGCTGGTCCTCCTC  
M T A A S M G P V R V A F V V L L

GCCCTCTGCAGCCGGCCGGCCGTGCGCCAGAACTGCAGCGGGCCGTGCCGGTGCCCGGAC  
A L C S R P A V G Q N C S G P C R C P D  
| -> exon 2

GAGCCGGCGCCGCGCTGCCCCGGCGGGCGTGAGCCTCGTGCTGGACGGCTGCGGCTGCTGC  
E P A P R C P A G V S L V L D G C G C C

CGCGTCTGCGCCAAGCAGCTGGGCGAGCTGTGCACCGAGCGGACCCCTGCGACCCGCAC  
R V C A K Q L G E L C T E R D P C D P H

AAGGGCCTCTTCTGTGACTTCGGCTCCCCGGCCAACCGCAAGATCGGCGTGTGCACCGCC  
K G L F C D F G S P A N R K I G V C T A  
| ->

AAAGATGGTGCTCCCTGCATCTTCGGTGGTACGGTGTACCGCAGCGGAGAGTCCTTCCAG  
K D G A P C I F G G T V Y R S G E S F Q  
exon 3

AGCAGCTGCAAGTACCAGTGCACGTGCCTGGACGGGGCGGTGGGCTGCATGCCCCCTGTGC  
S S C K Y Q C T C L D G A V G C M P L C

AGCATGGACGTTTGTCTGCCCAGCCCTGACTGCCCCTTCCCGAGGAGGGTCAAGCTGCCC  
S M D V R L P S P D C P F P R R V K L P

GGGAAATGCTGCGAGGAGTGGGTGTGTGACGAGCCCAAGGACCAAACCGTGGTTGGGCCT  
G K C C E E W V C D E P K D Q T V V G P

GCCCTCGCGGCTTACCGACTGGAAGACACGTTTGGCCCAGACCCAACTATGATTAGAGCC  
A L A A Y R L E D T F G P D P T M I R A  
| -> exon 4

AACTGCCTGGTCCAGACCACAGAGTGGAGCGCCTGTTCCAAGACCTGTGGGATGGGCATC  
N C L V Q T T E W S A C S K T C G M G I

TCCACCCGGGTTACCAATGACAACGCCTCCTGCAGGCTAGAGAAGCAGAGCCGCCTGTGC  
S T R V T N D N A S C R L E K Q S R L C

FIG. 2A

ATGGTCAGGCCTTGCGAAGCTGACCTGGAAGAGAACATTAAGAAGGGCAAAAAGTGCATC  
M V R P C E A D L E E N I K K G K K C I  
| -> exon 5

CGTACTCCCAAAATCTCCAAGCCTATCAAGTTTGAGCTTTCTGGCTGCACCAGCATGAAG  
R T P K I S K P I K F E L S G C T S M K

ACATACCGAGCTAAATTCTGTGGAGTATGTACCGACGGCCGATGCTGCACCCCCACAGA  
T Y R A K F C G V C T D G R C C T P H R

ACCACCACCCTGCCGGTGGAGTTCAAGTGCCCTGACGGCGAGGTCATGAAGAAGAACATG  
T T T L P V E F K C P D G E V M K K N M

ATGTTTCATCAAGACCTGTGCCTGCCATTACAACTGTCCCGGAGACAATGACATCTTTGAA  
M F I K T C A C H Y N C P G D N D I F E

TCGCTGTACTACAGGAAGATGTACGGAGACATGGCATGAagccagagagtgagagacatt  
S L Y Y R K M Y G D M A \*

aactcattagactggaacttgaactgattcacatctcatttttccgtaaaaatgatttcagta  
gcacaagttatttaaatctgtttttctaaactgggggaaaagattcccacccaattcaaaacat  
tgtgccatgtcaaacaatagtcctatcttccccagacactgggttgaagaatgttaagacttg  
acagtggaactacattagtagcacagcaccagaatgtatattaagggtgtggctttaggagcagt  
gggagggtagccggccgggttagtatcatcgatcgactcttatacgagtaatatgcctgctat  
ttgaagtgtaatgagaaggaaaattttagcgtgctcactgacctgcctgtagccccagtgac  
agctaggatgtgcattctccagccatcaagagactgagtcaagttgttccttaagtcagaaca  
gcagactcagctctgacattctgattcgaatgacactgttcaggaatcggaatcctgtcgatt  
agactggacagcttgtggcaagtgaatttgccctgtaacaagccagattttttaaaatttatat  
tgtaaatatttgtgtgtgtgtgtgtgtgtgtgtatatatatatatgtacagttatctaagtt  
aatttaaagttgtttgtgcctttttatttttgtttttaatgctttgatatttcaatgttagcc  
tcaatttctgaacaccataggtagaatgtaaagcttgtctgatcggtcaaagcatgaaatgga  
tacttatatggaaattctgctcagatagaatgacagtcggtcaaacagattgtttgcaaagg  
ggaggcatcagtgcttggcaggctgatttctaggtaggaaatgtggtagctcacg

FIG. 2B

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ccccgcccagacagccccgagacgacagccccggcgcggtccccggtccccacctccgaccaccgcca  
gcgctccaggccccgcgctccccgctcgccgccaccgcgcctccgctccgccccgagtgcca  
accATGACCGCCGCCAGTATGGGCCCCGTCCGCGTTCGCTGGTCCTCCTC

M T A A S M G P V R V A F V V L L

GCCCTCTGCAGCCGGCCGGCCGTCCGCCAGAACTGCAGCGGGCCGTGCCGGTGCCCGGAC

A L C S R P A V G Q N C S G P C R C P D

| -> exon 2

GAGCCGGCGCCGCGCTGCCCGGCGGGCGTGAGCCTCGTGCTGGACGGCTGCGGCTGCTGC

E P A P R C P A G V S L V L D G C G C C

CGCGTCTGCGCCAAGCAGCTGGGCGAGCTGTGCACCGAGCGGACCCCTGCGACCCGCAC

R V C A K Q L G E L C T E R D P C D P H

AAGGGCCTCTTCTGTGACTTCGGCTCCCCGGCCAACCGCAAGATCGGCGTGTGCACCCGC

K G L F C D F G S P A N R K I G V C T A

| ->

AAAGATGGTGCTCCCTGCATCTTCGGTGGTACGGTGTACCGCAGCGGAGAGTCCTTCCAG

K D G A P C I F G G T V Y R S G E S F Q

exon 3

AGCAGCTGCAAGTACCAGTGCACGTGCCTGGACGGGGCGGTGGGCTGCATGCCCTGTGC

S S C K Y Q C T C L D G A V G C M P L C

AGCATGGACGTTCGTCTGCCCAGCCCTGACTGCCCTTCCCGAGGAGGGTCAAGCTGCCC

S M D V R L P S P D C P F P R R V K L P

GGGAAATGCTGCGAGGAGTGGGTGTGTGACGAGCCCAAGGACCAACCGTGTTGGGCCT

G K C C E E W V C D E P K D Q T V V G P

GCCCTCGCGGCTTACCGACTGGAAGACACGTTTGGCCCAGACCCAACCTATGATTAGAGCC

A L A A Y R L E D T F G P D P T M I R A

| -> exon 4

AACTGCCTGGTCCAGACCACAGAGTGGAGCGCCTGTTCCAAGACCTGTGGGATGGGCATC

N C L V Q T T E W S A C S K T C G M G I

TCCACCCGGGTTACCAATGACAACGCCTCCTGCAGGCTAGAGAAGCAGAGCCGCCTGTGC

S T R V T N D N A S C R L E K Q S R L C

FIG. 21<sup>2A</sup>

aactcattagactggaacttgaactgattcacatctcatttttccgtaaaaaatgatttcagta  
gcacaagttattttaaatctgttttttctaactgggggaaaagattcccacccaattcaaaacat  
tgtgccatgtcaaacaaatagtctatcttccccagacactgggttgagaatgttaagacttg  
acagtggaaactacatttagtacacagcaccagaatgtatattaagggtgtggctttaggagcagt  
gggaggggtaccggcccgggttagtatcatcagatcgactcttatacgagtaatatgcctgctat  
ttgaagtgtaattgagaaggaaaatttttagcgtgctcactgacctgacctgtagccccagtgac  
agctaggatgtgcattctccagccatcaagagactgagtcaagttgttccttaagtcagaaca  
gcagactcagctctgacattctgattcgaatgacactgttcaggaatcggaatcctgtcgatt  
agactggacagcttgtggcaagtgaatttgacctgaacaagccagattttttaaaatttatat  
tgtaaatatattgtgtgtgtgtgtgtgtgtgtatatatatatatatgtacagttatctaagtt  
aatttaaagttgtttgtgcctttttatttttgtttttaatgctttgatatttcaatgttagcc  
tcaatttctgaacaccataggtagaatgtaaagcttgtctgatcggttcaaagcatgaaatgga  
tacttatatggaaattctgctcagatagaatgacagtcctgtaaaacagattgtttgcaaagg  
ggaggcatcagtgctctggcaggctgatttctaggtaggaaatgtggtagctcacg

FIG. 2-2<sup>a</sup> 2B